AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A method for maintaining a non-differentiated state of human stem cells, while allowing cell division of said human stem cells, comprising administering to said human stem cells an effective amount of an inhibitor of cell proliferation of cell development in sequential combination with an anti-inhibitor in a controlled manner to maintain the non-differentiated state of stem cells, while allowing their cell division, wherein said anti-inhibitor is anti-TGFβ in an amount of 0.1 µg to 10 mg/ml, and wherein said inhibitor is TGFβ in an amount of 0.01 pg/ml to 1 mg/ml and said human stem cells are CD34+ stem cells.

2-7. (canceled)

8. (currently amended) The ~~multiplication process~~ method according to claim [[5]] 1, wherein the stem cells are present in a cell concentration of about 1 to about 10^{10} cells per ml.

9. (currently amended) The ~~multiplication process~~

method according to claim [[5]] 1, wherein the inhibitor of cell development is synthesized by the stem cells, and/or is added to the culture medium containing the stem cells.

10. (canceled)

11. (currently amended) The multiplication process according to claim [[5]] 1, wherein the inhibitor of cell development is present in a concentration ranging from about 10^{-10} mg/ml to 1 mg/ml.

12-20. (canceled)

21. (new) A method for maintaining a non-differentiated state of human stem cells, while allowing cell division of said hum stem cells, comprising administering to said human stem cells an effective amount of an inhibitor of cell development in sequential combination with an anti-inhibitor of cell proliferation in a controlled manner to maintain the non-differentiated state of stem cells, while allowing their cell division, wherein said anti-inhibitor is anti-TGFβ in an amount of 0.1 µg to 10 mg/ml, and wherein said inhibitor is chosen among TGFβ or activin in an amount of 0.01 pg/ml to 1 mg/ml and said human stem cells are hematopoietic somatic stem cells or embryonic stem cells.

22. (new) The method according to claim 21, wherein the stem cells are present in a cell concentration of about 1 to about 10^{10} cells per ml.

23. (new) The method according to claim 21, wherein the inhibitor of cell development is synthesized by the stem cells, and/or is added to the culture medium containing the stem cells.

24. (new) The method according to claim 21, further comprising the following steps:

a) initiating a first cycle of division of said non-differentiated stem cells, by seeding non-differentiated stem cells in a resting state in an initial cell concentration, in the presence of one or more cytokines, and neutralizing the effect of an inhibitor of cell development present in the culture medium so that said cells leave their resting state by the initiation of a first cell division,

b) returning said cells to a resting state by treating said cells with an inhibitor of cell development, said inhibitor being synthesized by said stem cells or being added to the culture medium,

c) optionally washing said cells obtained in the preceding stage to remove catabolites and the inhibitor of cell development,

d) optionally diluting said cells obtained in the preceding stage to maintain an optimum cell concentration ranging from about 100 to 10^{10} cells per ml,

e) repeating the cycles of division and resting described above until the amplification factor of the cells is sufficient to obtain the number of said cells, and

f) stopping of the multiplication of non-differentiated stem cells to store them, use them or cause them to differentiate *in vitro*.

25. (new) The method according to claim 24, wherein neutralization of the effect of the inhibitor of cell development, present in the culture medium is effected by

- addition to the culture medium, in a suitable amount, of an anti-inhibitor of cell proliferation, and

- withdrawal from the culture medium of the inhibitor of cell development.

26. (new) The method according to claim 24, wherein the duration of a single resting state ranges from 1 hour to 3 years and in that the duration of a single division cycle ranges from about 6 hours to 3 years.